DETAILED ACTION

1.   Claims 25-52 have been examined.

Specification

2.   The amended title of the invention is not descriptive. A title that is broad enough to read

on most, if not all, processors in existence today does not satisfy the requirement for a

descriptive title. A new title is required that is clearly indicative of the invention to which the

claims are directed.

3.   It appears that the substitute specification, though filed by applicant on April 24, 2006,

was not entered (the reason is unknown to the examiner). Therefore, applicant is asked to

resubmit the substitute specification.

Drawings

4.   The drawings are objected to for being of poor quality. All blank components should be

labeled as what they are (e.g., box 17 in Fig.1, boxes 302, 303, 303A, 304, 305C, 306, 306A, 307

in Fig.3, and boxes 110, 210, and 502 in Fig.5). The examiner does not mean that applicant

needs to label them with the aforementioned numbers, as they already are. But they should be

labeled with words as the rest of the components are. Also, please remove all hand-written

numbers/labels (such as "1" in Fig.1 near component 17). Furthermore, components 15, 15A,

and 15B throughout the drawings include lines, dots, and/or other marks, which should be

removed. Finally, reference numbers should not overlap components in the figures (e.g., 14C in

Fig.1, 16A in Fig.3). Line quality should be clear and consistent. Please see the draftsperson's notice for further objections.

Claim Objections

5.   Claims 33-34 and 48 are objected to because of the following informalities: In line 3, insert --individual-- before "operating" to make it clear that the individual operating mode of claim 32 is being referred to. Appropriate correction is required.

6.   Claims 35-48, under one broad and reasonable interpretation, are directed to software per se (for instance, a system of VHDL components modeling hardware), as claims 35-46 include no explicit recitation of any hardware component, nor do they include any component which must be interpreted solely as hardware. Therefore, to avoid a future 101 rejection, please amend claims 35 and 47 to explicitly include at least one hardware component by inserting the word "hardware" into the claims. In claim 35, "hardware" may be added, for example, before "device" in line 1, before "control unit" in line 4, and/or before "comparator" at the beginning of the last paragraph. In claim 47, "hardware" may be added, for example, before "processing unit" in line 1, before "device" in line 2, before "control unit" in line 4, and/or before "comparator" in the last paragraph.

7.   Claim 39 is objected to because of the following informalities: In line 1, it appears that "is" should be replaced with --are--. Appropriate correction is required.

8.   Claim 41 is objected to because of the following informalities: In line 2, it appears that "cycle" should be replaced with --speed--. Appropriate correction is required, but no new matter should be inserted.

Claim Rejections - 35 USC § 101

9.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

10.   Claim 52 is rejected under 35 U.S.C. 101 because the claimed invention is directed to

non-statutory subject matter. Specifically, claim 52 includes no explicit recitation of any

hardware component, nor do the claims include any component which must be interpreted solely

as hardware. Hence, claim 52 may be broadly and reasonably interpreted as being directed to

software per se (e.g., a system of VHDL components modeling hardware). Software is not one

of the four statutory categories of invention. Software is merely an abstract idea. To overcome

the 101, please explicitly claim at least one hardware component by inserting the word

"hardware" before "device" in line 1, before "arrangement" in line 3, and/or before "control

unit" in line 4.

Claim Rejections - 35 USC § 112

11.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making
> and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it
> pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
> contemplated by the inventor of carrying out his invention.

12.   Claim 25-48 are rejected under 35 U.S.C. 112, first paragraph, because the specification,

while being enabling for comparing operands in a first comparator (Fig.1, 5C or 6C), and

comparing resulting data in a second comparator (Fig.1, 14C), does not reasonably provide

enablement for "comparing the operands and resulting data through a comparator" (and the like),

which suggests that operands are compared with resulting data in a single comparator, and/or

that operands are compared in a comparator and resulting data is compared in the same

comparator, both of which appear to not be disclosed. The specification does not enable any

person skilled in the art to which it pertains, or with which it is most nearly connected, to

make/use the invention commensurate in scope with these claims. The claims should be

amended to make it clear what is compared with what and that separate comparators are used, as

shown in Fig.1. Similarly, applicant claims that the operands and resulting data are released and

written to a bus if in agreement. However, the examiner does not believe that applicant means

they are written to the same bus, but different busses (Fig.1). Please make it clear that operands

are written to a first bus when the compared operands are in agreement, and resulting data is

written to a second bus when the compared resulting data is in agreement. Finally, by claiming

"if in agreement" and "if not in agreement", the scope of the claims covers checking to see if

operands and resulting data are in agreement or not (i.e., resulting data is compared to operands).

This is incorrect and must be reworded.

13.   Claims 25-48 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with

the written description requirement. The claim(s) contains subject matter which was not

described in the specification in such a way as to reasonably convey to one skilled in the relevant

art that the inventor(s), at the time the application was filed, had possession of the claimed

invention. Specifically, claims 25, 35, and 47 recite, in the last two lines, that "the operands and

the resulting data are withheld and written to an error register if not in agreement." The

examiner has found support for writing disagreeing results to an error register (see page 12, lines

21-23, of the original specification), but has not found support for writing disagreeing operands

to an error register. The drawings and specification do not appear to illustrate such a feature. If

applicant believes the examiner is incorrect, the applicant is respectfully requested to specifically

point out support in the specification and drawings for this claimed feature. If support exists for

these features in the specification, recall that the drawings must be amended to show these

claimed features.

14.   Claims 26-34, 36-46, and 48 are rejected under 35 U.S.C. 112, 1st paragraph, for

containing new matter and for including non-enabling scope, because they are each dependent on

a claim introducing new matter and having non-enabling scope.

15.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

16.   Claims 25-52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

17.   First, applicant's use of "clock cycle" throughout the claims is unclear. It is not clear if

applicant means to use "clock cycle", "clock speed", "clock rate", or something else. For

instance, in claim 40, the use of "cycle" in this context doesn't appear to be correct. Though, the

use of cycle is mentioned below for some claims, the examiner asserts that the use of "cycle"

doesn't appear to be proper in any of the claims that include it. The examiner would like

clarification from applicant. Recall that no new matter will be permitted.

18.   Regarding claims 25, 35, 49, and 52, the intended scope of "operating the executing units

at a predefinable clock cycle" is unclear. A cycle encompasses the activity between two rising

edges (or two falling edges). That is, a single cycle comprises a transition of the clock signal from low to high and a second transition from high to low (or vice-versa). Is applicant claiming that the execution units are to operate in one particular, known cycle? Or does applicant mean to claim that the units operate at a predefined clock speed/rate? What is predefinable: the clock or the clock cycle? If the latter, how does one predefine which specific cycle an execution unit will operate? Clarification is requested.

19.   Regarding claims 26 and 49, it is not clear what is "in the form of a full cycle". It is also not clear what "faster than the full cycle" means. Clarification is requested.

20.   Regarding claims 27, 36, and 50, the grammar of the claim is simply unclear. Specifically, it is not clear what is meant by "as full cycle". Also, it is not clear what is meant by "the clock cycle of the execution units". Clarification is requested.

21.   Regarding claims 28 and 51, it is not clear what is meant by "designed as half cycle", and again, "the full cycle" is unclear as used in this context. Clarification is requested.

22.   Regarding claim 34, it is not clear what is released simultaneously. That is, if the one of states are released, what are they released simultaneously with? It appears that two or more things would need to be released in order to have simultaneous release. Releasing one thing is not a simultaneous release unless something else is released. What is that something else? An analogy would be if applicant were to claim "driving a car simultaneously." This doesn't make sense by itself. Only if applicant claimed "driving a car and listening to the radio simultaneously" would the claim become clear. The same situation applied to this claim 34. Clarification is requested.

23.   Regarding claim 48, it is not clear what is released successively. That is, if the one of states are released, what are they released successively with? It appears that two or more things would need to be released in order to have a successive release. Releasing one thing is not a successive release unless something else is released. What is that something else? An analogy would be if applicant were to claim "going to the store successively." This doesn't make sense by itself. Only if applicant claimed "going to the store and successively buying milk" would the claim become clear. The same situation applied to this claim 48. Clarification is requested.

24.   Regarding claim 52, the grammar of the claim is simply unclear. Specifically, it is not clear what is meant by "as full cycle". Also, the last three lines are not clear. How is a second cycle faster than a first cycle? What is "in a same clock cycle? Clarification is requested.

25.   Claims 26-34, 36-46, 48, and 50-51 are rejected under 35 U.S.C. 112, 2nd paragraph, for being indefinite, because they are each dependent on an indefinite claim.

Response to Arguments

26.   Applicant's arguments filed on December 18, 2009, have been fully considered but they are not persuasive.

27.   Regarding the 112 rejections, the examiner still does not feel that the use of "clock cycle", "full cycle", and "half cycle", is proper, as currently worded. Applicant's arguments and the specification do not clarify applicant's position. Claims 26-28 are good examples of how confusing the language is. The examiner does not understand, in any way, what"...in the form of a full cycle" means. Claim 27 is not understood at all. What is a clock cycle of the execution units? And, what does "as full cycle" mean? A clock cycle is a clock cycle. What is applicant

equating in claim 27 to a full cycle? Claim 28 is also not understood. Until the claims are worded in a more clear fashion, the 112 rejections are maintained, as the examiner cannot understand the full scope of the claims.

28.   Also, on page 14 of the remarks, applicant stated that claim 39 was amended to include "may operate as a register system". However, this is not consistent with the actual amendment made to claim 39.

Conclusion

29.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

30.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is reminded that in amending in response to a rejection of claims, the patentable novelty must be clearly shown in view of the state of the art disclosed by the

references cited and the objections made. Applicant must also show how the amendments avoid

such references and objections. See 37 CFR § 1.111(c).

Dickey et al., U.S. Patent No. 6,665,818, has taught detecting, diagnosing, and handling

deadlock errors, in which error information is stored into an error log register. However, Dickey

has not taught storing compared and disagreeing results to an error register.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to DAVID J. HUISMAN whose telephone number is (571)272-

4168. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David J. Huisman/
Primary Examiner, Art Unit 2183